Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

1. (Cancelled)

2. (Currently amended) A device operated by a user to monitor and indicate ~~for indicating~~ changes in ~~the~~ ~~monitored~~ resistance of a living body comprising:

a resistance measuring circuit having external leads for sensing the resistance of a living body placed across the external leads;

an amplifier coupled to the resistance measuring circuit for producing an analog measurement signal indicative of the sensed body resistance;

an indicator circuit for displaying visually perceivable indicia representative of sensed body resistance changes; and

a digital processing unit for digitizing and digitally processing the analog measurement signal in a manner that substantially offsets ~~the~~ effects of component aging, tolerances and temperature on ~~the accuracy of the~~ measurement signal accuracy

wherein the digital processing unit includes

means for substituting a plurality of electrical resistance values for sensing by the amplifier in lieu of a body resistance to produce measurement signals corresponding to simulated body resistance values, said plurality simulating a plurality of body resistance values,

means for digitizing the measurement signals corresponding to the simulated body resistance values, and storing in memory the resulting plurality of calibrated measurement values corresponding to the plurality of simulated body resistance values,

compensation means for computing, based on the stored calibrated measurement values, calibrated measurement values to be associated with respective additional body resistance values,

means for producing an indicator-driving series of digital difference values during the monitoring of the living body's resistance that represent the difference between the

monitored living body's digitized measurement ~~values~~ signals and a selected user-adjustable base value, the user-adjustable base value being selected by the user from calibrated measurement values,

manually positionable means operable by the user to select from the plurality of said base values ~~by adjusting the position of the manually positionable means~~, and sensitivity adjustment means for controlling the ~~magnitude of a~~ change in the indicator-driving difference values caused by a change in the monitored living body's sensed resistance, and

means applying an automatic correcting gain factor to the indicator-driving value as a function of the selected base value to produce the digitally processed measurement signal, the gain-applying means applying a first non-linear gain when the selected base value corresponds to a ~~very~~ low living body resistance value of less than approximately 5 K-ohms ~~a first body-resistance value~~, and a second non-linear gain when the selected base value corresponds to a ~~very~~ high living body resistance value of more than 100 K-ohms ~~a second body-resistance value~~, the gain for the living body resistances values therebetween ~~between said first and second values~~ being essentially a constant, said first non-linear gain being more than said constant and increasing with decreasing base value, said second non-linear gain being less than said constant and increasing with increasing base value.

3. (Previously presented) The device of Claim 2 wherein the first body-resistance value is approximately 5K-ohms.

4. (Previously presented) The device of Claim 2 wherein the second body-resistance value is approximately 100K-ohms.

5. (Original) The device of Claim 2 wherein the substituting means includes a multiplexer responsive to a plurality of selection signal values to respectively place a component in the resistance measuring circuit selected from the group consisting of (1) the external leads and (2) a respective one of a plurality of electrical resistors.

6. (Previously presented) The device of Claim 2 including means for automatically activating the substituting means upon powering-up of the device to produce the calibrated measurement values.

7. (Previously presented) The device of Claim 2 wherein the digital processing unit includes

means for subtracting the monitored body's electrical resistance value from the selected user-adjustable base value to produce an adjusted measurement signal as the measurement signal to the indicator means, and

an optical encoder coupled to the manually positionable means for producing the base value as a function of the position of the manually positionable means.

8. (Previously presented) The device of Claim 7 wherein the manually positionable means consists of a manually rotatable knob, and

the optical encoder includes a rotatable spindle coupled to said knob and means for producing a digital output signal indicative of the spindle's position of rotation.

9. (Original) The device of Claim 8 including means for adjusting the magnitude of the digital output signal from the optical output encoder prior to the subtraction of the monitored body's electrical resistance in the substantial accordance with the equation:

$$R_{TA} = \frac{3}{0.00016611111-0.00002555556(TA)}$$

where TA is the scale position of the manually positionable means, and

R_{TA} is the value of the output signal.

10. (Original) The device of Claim 7 including

means for repeatedly sampling the resistance value of the living body;

means for subtracting each sampled value from the adjusted base value to obtain the measurement signal; and

sensitivity adjustment means for coupling the measurement signal to the indicator means,

the sensitivity adjustment means including means for multiplying the measurement signal by a gain factor which depends on the position of the manually-adjustable means.

11. (Previously presented) The device of Claim 2 wherein the substituting means includes a multiplexer responsive to a plurality of selection signal values to place respective electrical resistance values in the resistance measuring circuit in lieu of a living body resistance, and wherein

the digital processing unit includes means for producing the selection signals to calibrate the device.

12. (Previously presented) The device of Claim 2 wherein the substituting means includes a multiplexer responsive to a plurality of selection signal values to place a component in the resistance measuring circuit selected from the group consisting of (1) the external leads and (2) a respective one of a plurality of electrical resistance values.

13. (Previously presented) The device of Claim 2 including means for automatically activating the substituting means, the digitizing means and the compensation means prior to the monitoring of the living body.

14. (Previously presented) The device of Claim 2 wherein the manually positionable means consists of a manually rotatable knob, and

an optical encoder including a rotatable spindle coupled to said knob to produce a digital output value indicative of the spindle's position.

15. (Previously presented) The device of Claim 14 wherein the magnitude of the digital output value R_{TA} is in substantial accordance with the equation:

$$R_{TA} = \frac{3}{0.00016611111-0.00002555556(TA)}:$$

where: TA = the TA value at the position of the manually positionable means.

16. (Previously presented) The device of Claim 2 including

means for repeatedly sampling the analog measurement signal;

means for obtaining the difference between (a) at least some of the sampled values and (b) the user-adjustable base value to obtain respective digital difference values.

17. (Previously presented) The device of Claim 2 wherein the first non-linear gain applied by the gain-applying means is in substantial accordance with the relationship expressed by the equation:

$$\text{Gain} = \frac{5000}{R_{TA} - 21087}$$

where $R_{TA} = \dfrac{3}{0.00016611111-0.00002555556(TA)}$ and

TA = the TA value at the position of the manually positionable means.

18. (Previously presented) The device of Claim 2 wherein the second non-linear gain applied by the gain-applying means is in substantial accordance with the relationship expressed by the equation:

$$\text{Gain} = \frac{45450}{R_{TA} - 71941}$$

$$\text{where } R_{TA} = \frac{3}{0.00016611111 - 0.00002555556(TA)} \text{ and}$$

TA = the TA value at the position of the manually positionable means.

19. (Previously presented) The device of Claim 7 wherein the optical encoder is not affixed to the device, and further including communication means for communicating digital values generated by the optical encoder to the digital processing unit.

20. (Previously presented) The device of Claim 7 wherein the device has both an affixed and a non-affixed optical encoder, and further including

communication means for communicating digital values generated by the remote digital encoder to the digital processing unit, and

means for deactivating the affixed digital encoder while remote digital values from the remote digital encoder are communicated to the digital processing unit.

21. (Previously presented) The device of Claim 2 wherein the indicator circuit includes

a meter having a face, a coil for establishing a magnetic field when electric current flows through the coil, and an indicating needle deflected along said face by the magnetic field by an amount generally proportional to the amount of electric current through the coil;

means coupling an analog electrical signal representative of the processed measurement signal to the coil; and

optical transistor means shunting the coil to provide essentially a short circuit around the coil when the device is unpowered to prevent electromagnetically induced current in the meter coil from physical movement of the meter to cause sudden and off-scale needle movement that could damage the needle.

22. (Previously presented) The device of Claim 2 wherein the resistance measuring_circuit includes

first and second electrodes respectively coupled electrically to the external leads for electrical coupling to the living body so as to impose the resistance of the living body between the electrodes:

a voltage divider circuit adapted for coupling between a D.C. source voltage and a ground reference, the resistance sensing circuit comprising:

a first circuit leg having a series circuit connection between the D.C. source voltage and the ground reference (a) a first resistor, (b) said first and second electrodes and (c) a second resistor, said first and second electrodes being reasonably connected to said circuit.

23. (Previously presented) The device of Claim 22 further including a bypass in said series circuit for selectively establishing a connection between said first and second resistors that bypasses the electrodes.

24. (Previously presented) The device of Claim 23 wherein the bypass includes

a jack having a pair of terminals respectively coupled to the first and second resistors for releasably connecting said electrodes via the jack in series circuit with the first and second resistors, and for electrically coupling said first and second resistors in series circuit when the electrodes are released from their circuit connection.

25. (Previously presented) The device of Claim 24 including a third resistor, the jack electrically coupling the third resistor in series circuit between said first and second resistors when the electrodes are released from their circuit connection.